The Effects of Nonconscious Priming on Massage Therapy Administered to Anxious Recipients

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ABSTRACT

This experiment analyzed the effect of priming on therapeutic bond in massage therapy as treatment for anxiety. Since parallels exist between psychotherapy and massage therapy, the therapeutic bond (a common factor in psychotherapy) was analyzed to determine what effect it would have on massage therapy outcomes. A prime was used to subconsciously manipulate the participant's therapeutic bond. It was hypothesized that those receiving positive priming would have a better therapeutic bond than those who received negative priming

Fifty-two University of Wisconsin-Stout students participated (8 = male, 44 = female; average age = 21). Results indicated that priming did not have the intended effect on therapeutic bond. Instead, it was observed that priming affected anxiety levels and attitudes towards massage with the opposite expected effect. It was found that those who received negative priming reported having a greater reduction in anxiety and a better attitude towards massage compared to those that received positive priming prior to massage.

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Chapter 1: Introduction

Massage Therapy for Anxiety

Massage therapy (MT), the manual manipulation of soft tissue intended to improve health and psychological wellness, is known to be effective in decreasing anxiety (Moyer, Rounds, & Hannum, 2004), though precisely how MT does this is not definitively known. This effect is an important one, as high levels of anxiety, in addition to being unpleasant, can contribute to impairments in social functioning (e.g., Hecht, von Zerrsen, & Wittchen, 1990; Koran, Thienemann, & Davenport, 1996), decreased resistance to illness (e.g., Schleifer et al., 1996; Zorilla et al., 1996), unemployment (e.g., Dooley, Fielding, & Levi, 1996), and, in some cases, death (e.g., Fawcett et al., 1990; Unützer et al., 2002). For these reasons, members of the medical field are now recommending MT to patients who exhibit high levels of anxiety (Keegan, 2003), sometimes in place of prescription medications, which addresses some patients' concerns related to the harmful side effects and dependencies that anti-anxiety medications may cause (Rexilius, Mundt, Erickson Megel, & Agrawal, 2002). This use of MT to treat anxiety has contributed to the increasing popularity of MT (Keegan, 2003).

Massage Therapy Relatedness to Psychotherapy

It has been theorized, based on the many similar characteristics shared by psychotherapy and MT, that MT may reduce anxiety by means that are similar to how psychotherapy is thought to produce the same effect (Moyer et al., 2004). Psychotherapy is a proven treatment for anxiety (Seligman, 1995; Stern, Ray, & Quigley, 2001; Compton et al., 2004), and its effectiveness may depend on, or be increased by, the development of a positive therapeutic relationship between patients and therapists (Segal, Whitney, Lam, & CANMAT Depression Work Group, 2001). Paralleling this, massage therapists have noted that a similar positive therapeutic relationship

may form between the massage therapist and client, and some have speculated that this may be critical to the success of MT (Price, 2005). The important factors within the therapeutic relationship involve privacy, assurance, and understanding so that the interpersonal therapy sessions will be productive. This is applicable in both MT and psychotherapy. Related to this, psychotherapy focuses on improving patient's positive connection between their mind and body. MT operates similarly with the massaging of the soft tissue and muscles by releasing stress and establishing a calm positive reaction that is both physiological and psychological (Moyer et al., 2004).

Other important characteristics exist between psychotherapy and MT in addition to the therapeutic bond. Both MT and psychotherapy have been proven to reduce depression, stress and anxiety. Psychotherapy also incorporates preventive measures to ensure that unwanted behavior patterns caused from stress, depression and anxiety subside. It utilizes a variety of techniques that are customized per patient including cognitive approaches and bonding formation (Stern et al., 2001). A specific treatment is designed for each client so that the greatest outcome can be achieved. Similar practices are used with MT because each patient has distinct problems that need concentration, depending on where tension is placed on certain parts of the back and neck (Davis & Spinasanta, 03/30/2006). According to Consumer Reports on Health, these particular types of localized massages are used to relieve stress and tension that causes back pain (Massage therapy: The healing touch.2005). According to researchers Moyer, Rounds and Hannum (2004), "MT can be considered a novel way of treating these (psychological and physiological) conditions, which are routinely addresses by means of psychotherapy or pharmaceuticals." (p. 6)

The amount of treatment that each individual receives is similar between the two therapies. For example, there are different patterns of treatment in MT, such as using single sessions or multiple sessions, which are used dependent upon particular individuals' problems

and requirements. The psychotherapist's diagnosis of the individual will determine the quantity of treatments that they will receive, varying for each client (Moyer et al., 2004).

Importance of Therapeutic Bond in Psychotherapy and Massage Therapy

One of the essential factors in psychotherapy is therapeutic bond. Therapeutic bond is recognized as the cognitive and behavioral affects that patients tend to experience towards the therapist. It is crucial for the outcome of psychotherapy that the feeling of role investment (the demonstrative effort that the client devotes to therapy), empathetic resonance (the client's understanding of the therapist's emotional involvement with the therapy), and mutual affirmation (the client's recognition that the therapeutic environment is secure) are perceived by the patient for an effective therapeutic bond to have been established (Saunders, 20001). These details are necessary in establishing a positive therapeutic bond which can also relate to the effectiveness of the treatment. From this established bond, therapist and client are able to focus on goals and an intervention with the client's understanding that the therapist empathizes with them (Saunders, 2000).

In relation to the similarities between MT and psychotherapy, it is appropriate to consider that MT may require a therapeutic bond to be effective. It is suggested that a therapeutic bond will only increase the effectiveness of the MT session (Moyer et al., 2004).

Experimental Manipulation of Therapeutic Bond via Priming

It is believed that a therapeutic bond should be achieved to maximize the likelihood of a greater effectiveness for treatment (Moyer et al., 2004). However, these studies are correlational in nature, and no experiments have been conducted in which therapeutic bond has been the independent variable. Since commonalities exist between the characteristics of psychotherapy and MT, a research experiment is warranted to examine the effectiveness of therapeutic bond in MT as well.

One of the more intriguing tools to use that can be used for testing the therapeutic bond is priming. Priming is recognized as using recent or current experiences to subconsciously create an effect on another activity. Priming is utilized to subconsciously manipulate the response tendencies as a result of a given stimulus (J. A. Bargh & Chartrand, 2000). When this application is applied towards the manipulation of the therapeutic bond, it is theorized that a distinctive change will have taken place and that the client will view the therapist differently than if no priming was to have occurred. Past research concurs with this evidence through the many studies that have used priming for manipulation. For example, Bargh, Chen and Burrows (1996) used a priming technique of scrambled sentences to prime for rudeness or politeness. A conversation then took place and it was found that those who were primed for rudeness interrupted the conversation 63% of the time, while those that were primed for politeness only interrupted 17% of the time. Other experiments also demonstrate that priming can have powerful effects. When participants are given the priming tool before a MT session, it is hypothesized that the priming will have an effect on the therapeutic bond they form with the therapist (J. A. Bargh & Chartrand, 2000).

Statement of the Problem

MT is known to significantly lower anxiety, but precisely how MT produces this effect is not known. Based on the general theory that MT and psychotherapy share important similarities, the current study aims to test the hypothesis that MT reduces anxiety to a greater degree when the recipient perceives the existence of a positive therapeutic bond with the massage therapist. A notable detail of the current study is the attempt to influence therapeutic bond experimentally by means of nonconscious priming, which permits stronger causal inferences than the correlational study designs that are typically used to examine the importance of therapeutic relationships in a range of therapies.

Assumptions of the Study

From past research, it was found that related characteristics exist between psychotherapy and MT. This being assumed, the importance of therapeutic bond will be examined to determine the significant effects of reducing anxiety. Priming will be used to manipulate therapeutic bond relationship.

Purpose of the Study

This study will test the following hypothesizes.

Hypothesis 1: MT will be observed to have an anxiety-reducing effect that is consistent with the findings of previous studies.

Hypothesis 2: Priming will have a direct effect on therapeutic bond, such that MT recipients primed with positive relationship words, such as *warm*, *close*, and *focused*, will exhibit higher levels of therapeutic bond than MT recipients primed with negative relationship words such as *cool*, *distant*, and *unfocused*.

Hypothesis 3: Because priming in this experiment is designed to act directly on therapeutic bond, it is not expected that priming will have an effect on EDA during MT, nor on posttreatment anxiety or attitudes toward massage, beyond that mediated by its effect on therapeutic bond.

Possible Limitations to the Study

Every clinical research experiment will have unavoidable limitations. The first limitation is that the University of Wisconsin-Stout's student body was the source of all participants. Therefore, this student sample does not represent all demographics that are present in the general population. Another limitation was that, due to limited resources, we only provided a single-session treatment to participants with no follow-up appointment.

Chapter II: Literature Review

Massage Therapy

According to Consumer Reports on Health, before pharmaceuticals, massage was the main treatment that was used to alleviate pain (Massage therapy: The healing touch.2005). MT, intended to promote health and well-being, uses many different procedures and methods (Moyer et al., 2004). MT can be applied to different parts of the body, with different amounts of pressure, and in various ways (e.g., stroking, pressing, kneading). However, the unifying principle behind these various approaches is that the muscle tissue manipulation will reduce painful symptoms and improve mental and physiological health. Several of the theories for how MT can improve overall health are reviewed next.

Significant Theories and Findings. Though there is limited scientific research in the area of MT, ideas have been developed to explain why MT is beneficial for anxiety and stress. One such study suggests that MT may increase levels of serotonin, therefore restricting the delivery of noxious nerve signals to the brain (Field, 1998). Closely related to this, it has been observed that pressure applied to muscles may stimulate an increase of endorphins in the bloodstream (Andersson & Lundeberg, 1995). It was also found that MT stimulates blood flow which increase oxygen and nutrient levels in the blood. Increased blood flow helps to ease the pain of sore muscles and increases the recovery of muscle strength (Massage therapy: The healing touch.2005). MT may also shift the autonomic nervous system from a sympathetic response to a parasympathetic response (Moyer et al., 2004). This is significant because the sympathetic response causes an increase in cardiovascular activity, stress hormones, and feelings of tension (Sarafino, 2006). Hence, a shift caused by MT, from a sympathetic response to a parasympathetic response, may bring about a state of calmness and well-being (Massage therapy: The healing touch.2005). When this type of stress reduction occurs, it has beneficial effects on

the body by decreasing heart rate, muscle relaxation, decrease in the level of stress hormones (epinephrine and cortisol) and increases the levels of pain-reduction neurotransmitters (dopamine and serotonin). Such a shift may also promote the effectiveness of the immune system, which boosts the production of lymphocytes that fight viruses and cancers (Massage therapy: The healing touch.2005).

Analyzing Physiological Effectiveness There are various techniques to analyze the effectiveness of MT. One simple practice would be to have clients self-report their pain and symptoms before and after treatment. Another measure can also be utilized to examine the physiological effectiveness of MT on the body. Electrodermal Activity (EDA) is a measure that is analyzed by a psycho-galvanometer (Shepard, 2008). It measures the skin's electrical resistance by transmitting a minute current into the body. It is found that an emotional stimulus is identifiable by the electrical change that can be viewed and recorded through EDA. This examines the participant's emotional reaction to their environmental stimuli. When various stimuli are exposed to the participant, excitement levels either decrease or increase dependent upon the stimulus. It is responsive by the activation of the sweat gland, which is controlled by the autonomic nervous system. It has been used frequently by past researchers when analyzing stress reduction on the body; EDA has been used to measure stress reduction to calming music (Peretti, 1975).

Anxiety

Anxiety is identifiable as the unpleasant feeling of uneasiness and apprehension (Kroenke, Spitzer, Williams, Monahan, & Lowe, 2007). It has been distinctly known to cause stress upon the body and increase the risk of a variety of diseases and illnesses. Researchers have been gaining knowledge of how anxiety negatively influences psychological and physical health. It was found by the American Institute of Stress that over 43% of the adult U.S. population

encounters health problems that are primarily due to stress and anxiety, and that over 75% of doctors' visits are for stress-related problems and conditions. Anxiety and stress has been linked to increasing the risk of obesity, depression, irritable bowel syndrome, panic attacks, high blood pressure and heart conditions (Orsega-Smith et al., 2004; Pirtle, 2006). It was found that when certain emotions are triggered (e.g., anger, guilt and fear) that levels of bodily stress increase. This heightened state has physical impacts on the body, like increase heart rate and pupil dilation, along with an increase in stress hormone release. This response is a switch to the sympathetic nervous system, signaling the flight or fight mechanism. Although this is a normal response for a short period of time, a constant state causes harm to the body including a decrease to immune system functioning and disease prevention. It was found that stress and anxiety impact every function of the body from the brain to the heart muscle. Anxiety and stress may have the greatest impact on the gastrointestinal system and the digestion process. This unfolds because normally food only stays in the stomach for 30 minutes, but it takes 48 to 72 hours to pass through the entire digestive and intestinal system. When the body is under a great amount of stress, an increase in the release of cortisol and epinephrine can decrease the rate of the digestion process. Food is kept longer within the large intestine resulting in diarrhea or constipation (Pirtle, 2006). This is the reason why those under a great amount of stress report having gastrointestinal problems. More research is warranted in the effects that anxiety has on the body and operative methods of reduction.

Trait Anxiety. According to researchers Head and Lindsey (1983) trait anxiety is "stable anxiety resulting from personality characteristics which predisposes an individual to heightened anxiety" (p.289). Persons ranked high on trait anxiety tend to feel that they are constantly under some form of stress, and therefore having difficulty relaxing. Some may feel this way because they tend to worry about the situation and environment around them (MacArthur & MacArthur,

December 1997). It was discovered by experimenter Schwarzer (1996) that worry is negatively correlated with self-efficacy. Hence, those that tend to worry more have lower self-efficacy levels. This is relevant because individuals who tend to worry about the situational environment do not feel capable accomplishing tasks related to their low self-efficacy level; this in turn reinforces their trait anxiety (MacArthur & MacArthur, December 1997; Schwarzer, 1996).

State Anxiety. State anxiety is recognized as a brief emotional response that includes expressive emotion-like apprehension, tension, worry and increased autonomic nervous system activity. State anxiety is associated with an individual's reaction to their environment. Duration of the current anxiety state is dependent upon the individual's understanding of the intimidating situation (Robyak, 1986). Situational circumstances arise that may cause some amounts of stress and anxiety in all individuals. Situational stress or state anxiety is a biological stimulus that triggers the fight or flight mechanism to protect the body from danger. Levels of cortisol and epinephrine increase in the blood stream to alert the body of a problem or danger.

State-Trait Anxiety Inventory. One of the most widely-used methods for analyzing state and trait anxiety was a measure developed by experimenter Charles Spielberger. In 1983, he developed the State-Trait Anxiety Inventory (STAI), a self-report analysis that examines different aspect involved with state and trait anxiety. There are two different versions of the STAI, one that measures trait anxiety and the other that measures state anxiety. The trait version focuses on the participant's usual level of anxiety, while the state version focuses on the participant's currently level of anxiety (Spielberger, 1983).

Therapeutic Bond

Therapeutic bond is definable by the affects, cognition and behaviors that patients tend to experience towards the therapist. The therapeutic relationship that is formed between the therapist and patient is an essential ingredient in the effectiveness of psychotherapy. When a

positive therapeutic bond is formed, clients tend to experience better outcomes during their therapy sessions (Saunders, 2000). This is why psychotherapists strive to initiate a therapeutic bond.

Relationship Perspectives. Researchers have established that there are distinct methods in which the therapeutic bond influences treatment and outcome. Researchers have suggested that during psychotherapy sessions, treatment is more effective if a positive relationship exists. In different perspectives, it could also be determined that the association between therapist and patient may mediate the outcomes of the treatment. Therefore, simplifying that treatment produces a positive relationship, which sequentially causes positive outcome. In theory, the therapeutic bond is the interventional treatment. It was first suggested by Freud (1912/1958) that in order to establish a positive relationship, actions of serious interest and sympathetic understanding must be expressed by the therapist to the patient. Experimenters suggest that if therapists adapt specific attitudes of acceptance, warmth and empathy, this will foster feelings of trust by the patient. This will build confidence within the therapist-patient relationship and positive outcomes will result (Saunders, 2000).

Components to Therapeutic Bond. There are three distinct properties that are considered the framework to therapeutic bond. The first is role investment, defined as the amount of interest and motivation that the individual invests in the psychotherapeutic treatment. For this to be an effective part of the relationship establishment, the patient must be the responsible individual to initiate the communication with the therapist. The therapist must also demonstrate genuineness and reliability within the realm of role investment so that the patient feels that their concerns are understood. The second component of an effective therapeutic bond relationship is empathetic resonance. This is defined as patient and therapist arriving at a mutual understanding. In order for this component to have been established the therapist's empathic receptivity and patient's

expressiveness must be mutually understood. When this is achieved, communication and trust levels are established, therefore instituting a quality relationship. The last factor in the therapeutic bond alliance is identified as mutual affirmation. This is defined as interest in one another's wellbeing and initiates the behavior of quality caring. This involves the patient believing the accepting attitude of the therapist based on their past exchange of information and guidance. From the sum of successful role investment, empathetic resonance, and mutual affirmation, a connection to a positive therapeutic bond can be established between patient and therapist (Saunders, 2000).

Assessment of Therapeutic Bond. Since there are parallels between psychotherapy and MT, it is hypothesized that therapeutic bond will be important in MT as well. This relationship must be measured in order to examine its effectiveness on the treatment. The Therapeutic Bond Scale (TBS) is a standardized measure for this purpose. A modification of the TBS is used pertaining solely on what is being examined for this study. This modification concentrates on the Empathetic Resonance scale and the Mutual Affirmation scale. The Empathic Resonance scale analyzes the communication patterns and techniques used by the therapist and client to understand their compatibility. The Mutual Affirmation scale analyses the mutual feelings that might be felt by therapist and client (Saunders, 2000). Since this study focuses on the therapeutic bond felt by the client, it was felt that Empathetic Resonance scale and Mutual Affirmation scale would be the most relevant to focus on

Relationship to Massage Therapy. The correlations between the methods that are utilized in psychotherapy closely relate the psychological tools in MT as well. In MT, a therapeutic bond is established even though the strength may depend on the type and duration of sessions. Since the therapeutic bond relationship is an important component to psychotherapy, it is important to measure its effectiveness in MT as well through the TBS. The modified version that is used

during this experiment will focus more on the therapeutic bond that can be established during a MT session. The feelings of comfort, trust, understanding, and empathy of the massage therapist is important in establishing a therapeutic bond in MT. It would therefore be reasonable to examine the therapeutic bond between the massage therapist and client to determine if the effect it will have on the treatment outcome.

Priming

Researchers have recognized priming as a subconscious manipulation instrument for over the past 50 years. Priming is identified as "examining how a recent or current experience passively (without intervening an act of will) creates internal readiness," according to Bargh and Chartrand (2000, p255). The technique relies on social knowledge activation without knowledge to the participant. This enables researchers to measure the subconscious effects of the psychological processes and response. By using priming as a tool, experimenters are able to examine the effects of a situation by subconsciously manipulating an individual's psychological process. This causes them to behave differently than if no priming tool was used. Priming experimentation began when researchers discovered that effects of a recent activity were utilized again in the next, unrelated situation encountered. It was determined that information can be stored in the mind subconsciously and affect a later non-related situation (J. A. Bargh & Chartrand, 2000).

One priming technique is the "scrambled sentence test." It is considered a supraliminal priming technique where participants are given the priming stimulus as part of a task that they must complete. The participants are not aware that they are being exposed to the stimulus, but are given a task in which the stimulus repeatedly appears. They are given five words that they have to unscramble to form a four word complete sentence. One of the words in the sentence is the stimulus. A variation of terms are used in that are similar to the main concept that is intended

to be primed; this prevents the participant from becoming aware of the intentional task as well as subject area that is being primed. Also included are non-relevant sentences so that identification of the stimulus is more difficult to discover. Following the use of such priming, a debriefing procedure is used to determine if the participant had any conscious awareness of the stimuli or their purpose (J. A. Bargh & Chartrand, 2000).

For the priming technique to be sufficient and effective, researchers suggest that both the number of sentence items as well as the relevant stimulus concentration by using the scrambled sentence technique is an important variable. Experimentation was completed to determine if the more sentences used as well as greater concentration of the stimulus would result in a greater priming effect. The amount ranged from 30-60 sentences and the concentration of relevant primes ranged from 20%-80%. From this, it was concluded that the more priming sentences used as well as the greater concentration of primes produces a greater priming effect (J. A. Bargh & Chartrand, 2000).

Chapter III: Methodology

The fundamental goal of the study was to determine what effect priming has on therapeutic bond. The therapeutic bond influence was also assessed in the outcomes of the MT session. The methods and procedures used in this experiment are coordinated to elucidate that. A key feature of the study is the use of a double-blind design to ensure that neither experimenter nor participant biases could influence the results, which thereby increases confidence that any observed effects are the result of experimental manipulation of the independent variable.

Instruments

The first construct of interest was the trait anxiety level of students. The Trait portion of the STAI (Appendix B) was used in the selection process for the preliminary sample, which allowed selection of only students who exhibited high levels of trait anxiety for further participation.

The second construct of interest was the state anxiety level of students. When they arrived to their appointment, they were issued the pretest STAI to determine their current state of anxiety (Appendix C). This was used to determine a baseline of state anxiety. At the conclusion of the massage, participants were issued the post-test STAI to analyze any changes. Both trait and state versions consisted of 20 questions. Possible responses for both versions of the STAI range from 1=Not At All, 2=Somewhat, 3=Moderately So, 4=Very Much So. Some of the items are reverse scored, with possible total scores ranging from 20 to 80 with higher scores indicating a higher anxiety level. The STAI has very well established validity because each item met validity criteria at all stages of testing. It also has been correlated with evidence of the concurrent, convergent, divergent, and construct validity. The STAI was validated by contrasted groups, correlations of the T-Anxiety scale with various other measures of trait anxiety, correlations of other widely used measures of personality, correlations with measures of

academic aptitude and achievements and investigations of the effects of different amounts and types of stress on state anxiety scores (Spielberger, 1983).

The third construct of interest examined the conductivity of the skin by monitoring EDA. This analyzes the activity of the autonomic nervous system to determine if MT causes a shift in the balance between the sympathetic nervous system and the parasympathetic nervous system. By placing the EDA sensors on the non-dominant hand, researchers are able to analyze the electrical resistance across the surface of skin (Stern, Ray, & Quigley, 2001). EDA was monitored throughout the duration of the massage to determine how the participants were reacting to the different components and techniques of the massage. EDA recording for each participant ended when massage therapy ceased, and participants were permitted to remove the electrodes when the researcher entered the treatment room to perform posttreatment data collection.

The fourth construct of interest was the participant's attitude toward massage. This was examined by administering the Attitude Toward Massage (ATOM) Scale (Appendix D) to the participants when they arrived to their appointment. There are 9 items with the scoring range between 9 and 45, such that a higher score indicates a more positive attitude toward massage. Scores for each item ranged from 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree. The ATOM has established validity by correlation with related measures of treatment attitudes (Moyer & Rounds, 2008). The ATOM was measured as a pre-test and post-test to determine the variation that transpired over the course of the treatment.

The last construct of interest was the therapeutic bond. It was expected that this would be subconsciously manipulated by first administering a priming exercise. The priming exercise was developed by the current experimenters based upon a similar model used by Bargh and Chartrand (2000). It was administered to the participants as a mental alertness task so that they

were unaware of being primed. For this, they were given a set of scrambled sentences. Within the scrambled sentences were either words that primed for a positive, warm/close relationship (Appendix E) or negative, cool/distant relationship (Appendix F). Participants were instructed to unscramble the five-word groups into complete four word sentences by eliminating one word and rearranging the others. The massage was administered immediately upon completion of the priming task. Once the massage was completed, the participants were then given a modified version of the Therapeutic Bond Scale (TBS; Saunders, Howard, & Orlinsky, 1989; Appendix G). Modification consisted of omitting items that do not logically apply to massage therapy, an approach that was used successfully in a prior study that examined the concept of therapeutic bond in massage therapy (Moyer, 2007). Each response to an item on the TBS is converted to a scale score that can vary from zero to two. After accounting for items that are reverse scored, the items are averaged to yield a full scale therapeutic bond score that quantifies therapeutic bond from a possible minimum of zero and a possible maximum of two, with higher scores being indicative of a more positive therapeutic bond. Participants were also given the post-test version of the STAI and ATOM. After the completion of the post-tests, participants were asked funneling questions (Appendix H) that are used in debriefing when a priming tool is used. These questions ask participants what their interpretation of the experiment was and if they thought that any of the questionnaires affected their massage. By using this method, researchers were able to distinguish if the participant was aware that priming was used. The assessments were given in the order that they are listed: Informed Consent, STAI-Trait Anxiety, Informed Consent, EDA (electrode applied and recording began), STAI-State Anxiety pretest, ATOM pretest, priming tool, massage, TBS, STAI posttest, ATOM posttest and funneling questions.

Materials. The SelectSurvey online survey tool was used to create an electronic version of the STAI- trait anxiety for the selection of the preliminary sample. For the massage, items

used included Stronglite's Ergo-Pro Massage Chair, cleaning and sanitizing supplies, CD player, small table lamp and magazines. Music was provided by the massage therapist (Welch, 2003). Assessment tools included the STAI trait-anxiety, STAI state-anxiety, ATOM, priming tool, TBS, and funneling questions. The recording of the EDA data was through BioPac SS3LA EDA sensors that were connected to the BioPac MP3OB-CE amplifier. This information was recorded onto a personal computer using BioPac Student Lab Pro 3.6.7.

Setting. The experimental environment consisted of two adjacent rooms that had one-way glass between them. The computer for data collection resided in one room; massage and assessment tools was conducted in the other room. In the data collection room, there was a computer that was used to collect the EDA data continuously during the MT. The EDA sensors that were connected to the participant's index and middle fingers were connected to the computer via leads running through an opening between the two rooms. The massage room contained a desk and chair, along with a small table lamp, pencils and CD player. The room also contained the massage chair and cleaning equipment.

Design and Method

The present study used a true experimental design in which participants were randomly assigned to two different levels of the independent variable. Assessments were conducted by the experimenters. Information about the assessment tools was not provided to the massage therapist. The reasoning for this was to ensure that none of the questionnaires would affect the way that she completed her massage.

Once a participant arrived for massage, they were introduced to the experimenter and seated at a desk in the massage room. They were given the opportunity to complete the informed consent form. Next, the participants were verbally asked if they had participated in any strenuous exercise within the hour before their massage, because this could alter the EDA data that was

being collected. Lastly, they were then asked what hand they normally write with. EDA sensors were then placed on the index and middle finger of their non-dominant hand. A computer in the adjacent room started to collect EDA data.

After the experimenters left the room, participants were asked to complete the pretest STAI analyzing their current state of anxiety and the pretest ATOM scale. The participants were instructed to wait for approximately ten minutes allowing the EDA sensors to adjust to that individual.

Once the ten minutes were complete, the participants were signaled to open and start the priming task. The priming tasks were given to the participants folded and stapled by the experimenters. It was unknown to the experimenters, massage therapist, or the participants what version of the priming task was given. Participants were randomly assigned into two specific groups based upon what priming task they were given (positive or negative). It was vital to the experiment that it be a double-blind procedure. Immediately after a participant completed the priming task, the massage therapist entered the room and the massage began.

Treatment. The massage lasted approximately 25 minutes, and EDA was recorded throughout the massage. The massage therapist was instructed to introduce herself to the participant and ensure that the participant was comfortable in the massage chair. She was asked to keep conversation minimal with the participant so that this interaction would not become a variable in the experiment. The massage therapist used different strokes and pressures that included compression and palming pressure strokes. The opening back procedure included laying hands on back to introduce touch, with hand-over-hand glides laterally from cervical and thoracic vertebrae. She then continued with palming pressure and thumb pressure around scapulae and trapezius muscle, along the spine to the sacrum. Caudal pressure (pushing down) was then applied on shoulders (sometimes directing client to take deep breath in, and out, on

caudal pressure) to stretch upper tissue fibers of trapezius, with palming pressure and thumb pressure into muscle tissue. Next she used the finger dragging technique over cervical erector spinae group, with thumb pressure around cranial base. Lastly she repeated opening back procedure, with some focus in tense areas, to participant's tolerance, unless otherwise directed elsewhere, such as more work in neck or shoulders. These pressures and strokes are typically used in a standard chair massage. Since time was a limiting factor, the massage therapist worked on an area until she felt a change was made in muscle tissue. She worked on the same areas for all participants and always played the same music (Welch, 2003) throughout the duration of all massages. After the massage was complete, she informed the participant to wait in the massage chair for two minutes and left the room.

The experimenter entered the room shortly after to remove the EDA sensors. The participants then returned to the desk and chair. They were administered the TBS and posttest of STAI and ATOM; the experimenter left the room. Once the participants were completed with the questionnaires, the experimenter again entered the room and asked the remaining funneling questions to examine if the participant was aware of the priming task. After the questions were completed, the participant left. All of their information that they provided was placed into an envelope and sealed until data analysis began. Their EDA data was saved on the computer in a file for this experiment.

Massage Therapist

An experienced female massage therapist with a practice based in Menomonie, WI, and who previously expressed an interest in providing services in a research setting, was hired to provide all massage therapy sessions. The massage therapist is a graduate of the Centerpoint Massage & Shiatsu Therapy School in Minneapolis, MN. In addition to her massage therapy training and experience, participant safety was further ensured by the fact that the massage

therapist has certification from the American Heart Association in cardiopulmonary resuscitation, and is insured by the American Massage Therapy Association.

Participants

Three-hundred and seventy-five students attending the University of Wisconsin-Stout during the Spring 2008 semester, who were 18 years of age or older and not currently pregnant according to self-report, used an online computer survey interface to complete the trait portion of the STAI. The mean (41.08) and standard deviation (10.40) of their scores closely match college student norms provided in the STAI Manual (mean = 39.60, *SD* = 9.78).

To obtain treatment groups with the highest levels of anxiety, and because we could not accurately predict the proportion of survey participants who would also agree to participate in treatment, we first invited the survey participants who reported the highest levels of trait anxiety, and gradually worked our way down the list, expecting to obtain at least 50 participants well before we reached students with only average levels of trait anxiety. We eventually invited a total of 98 students to participate in treatment, all of whom scored at least 47 on the trait portion of the STAI, a value that is .57 *SD*s above the sample mean. Sixty of these 98 accepted our invitation and scheduled an appointment for treatment. Of the 60 who scheduled appointments, six individuals cancelled or failed to come, resulting in 54 kept appointments. Two of those appointments did not yield usable data. In one instance, a female participant randomized to the positive relationship condition became faint during treatment; she recovered quickly but was encouraged to discontinue her participation (and reassured that she would still receive full participation credit). In the other instance, a female participant randomized to the positive relationship condition completed the priming task and was introduced to the massage therapist, but then asked if one of the researchers could return to the treatment room to loosen the

electrodermal sensors attached to her fingertips. The researcher honored this request even though it invalidated the experimental protocol such that data collected from this participant was not used.

The treatment sample consisted of 52 participants. Three of these participants failed to notice that the pretest packet continued beyond the informed consent form, and so failed to complete the STAI and ATOM pretest. However, these individuals did complete the priming task (which was separate from the pretest packet) and all posttest materials, which allowed their data to be included where possible. Demographics of the participant sample and pretest data is displayed in Table 1, with analyses that show the groups did not differ before priming and treatment on any variables of interest.

Table 1

Demographic and Pretest Data of Treatment Participants

	All treatment participants (n = 52)	Negative prime condition (n = 28)	Positive prime condition (n = 24)	Tests of pretest group differences
Number of men/women	8/44	5/23	3/21	$X^2(1) = .29$, *ns*
Age	21.12 (4.66)	21.25 (5.67)	20.96 (3.22)	$t(50) = .22$, *ns*
Trait anxiety score	55.38 (5.76)	55.96 (6.25)	54.71 (5.20)	$t(50) = .78$, *ns*
State anxiety pretest score	45.69 (9.61)	44.88 (8.74)	46.61 (10.64)	$t(47) = .62$, *ns*
Massage attitudes pretest score	3.99 (.44)	4.00 (.80)	3.98 (.54)	$t(47) = .17$, *ns*

Note. Numbers in parentheses in the body of the table are standard deviations, except in the rightmost column where they represent the degrees of freedom of indicated statistical test. *ns* = not significant.

Acquisition of a treatment sample with subclinical to clinical levels of anxiety appears to have been successful. The sample's mean level of trait anxiety (55.38) is a value that exceeds the

90th percentile reported for a college student population, while the mean level of state anxiety (45.69) exceeds the 70th percentile. These values either exceed (in the case of trait anxiety) or approach (in the case of state anxiety) normative values reported for neuropsychiatric patients with an anxiety reaction (48.08, and 49.02, respectively) (Spielberger, 1983). Based on the observed scores, it is reasonable to expect that a substantial proportion of the treatment sample would meet DSM-IV-TR (American Psychiatric Association, 2000) criteria for an anxiety disorder if clinical diagnosis were performed.

Additional Controls

The main procedural checks that were applied to avert potential source of biases included having the priming tool part of the double-blind procedure so that the experimenters, massage therapist and participants were unaware of which prime was given until it was administered to the participants. To ensure that each experiment was carried out as intended, a protocol was instituted for the experimenters and massage therapist and trial tests were run. Any disturbances or necessary details were observed through the one-way glass and recorded.

Data Analysis

Data analysis began by both experimenters separately entering all of the data sets. The data sets were compared for differences and corrections were made.

There were three hypotheses for this experiment. Results are organized according to these hypotheses.

Hypothesis 1: MT will be observed to have an anxiety-reducing effect that is consistent with the findings of previous studies.

Hypothesis 2: Priming will have a direct effect on therapeutic bond, such that MT recipients primed with positive relationship words, such as *warm*, *close*, and *focused*, will exhibit

higher levels of therapeutic bond than MT recipients primed with negative relationship words such as *cool*, *distant*, and *unfocused.*

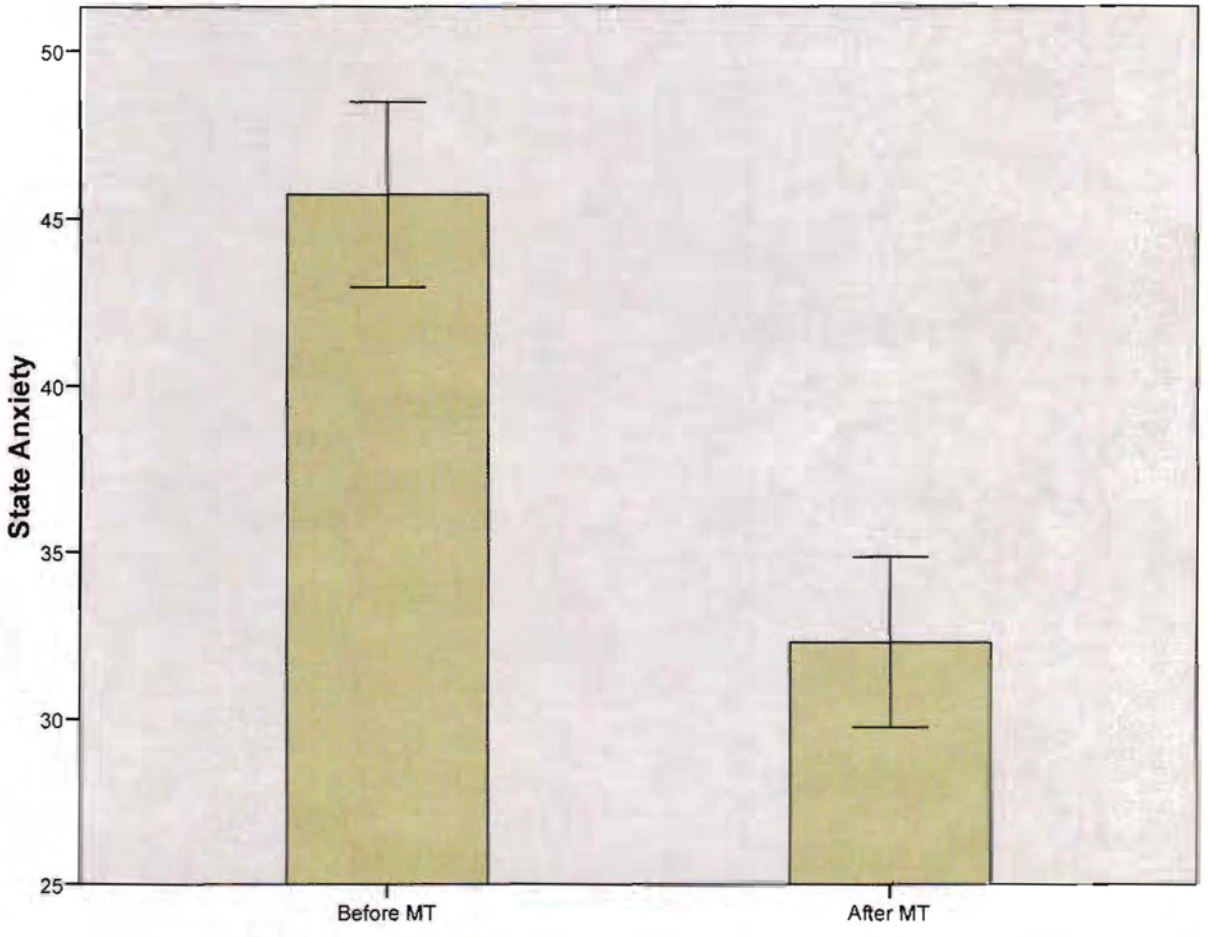
Hypothesis 3: Because priming in this experiment is intended to act directly on therapeutic bond, it is not expected that priming will have an effect on EDA during MT, nor on posttreatment anxiety or attitudes toward massage, beyond that mediated by its effect on therapeutic bond.

Chapter IV: Results

Hypothesis 1: MT did have an anxiety-reducing effect that is consistent with the findings of previous studies. Posttreatment levels of anxiety (*mean* = 45.69, *SD* = 9.61) were significantly lower than pretreatment levels (*mean* = 32.44, *SD* = 9.13) as determined by a paired-samples t-test (paired $t(48) = 10.37$, $r = .52$, $p < .01$). Figure 1 displays the overall change of participants' anxiety levels from pretreatment to posttreatment.

Figure 1

Pretreatment and Posttreatment Mean State Anxiety Levels +/- Two Standard Errors

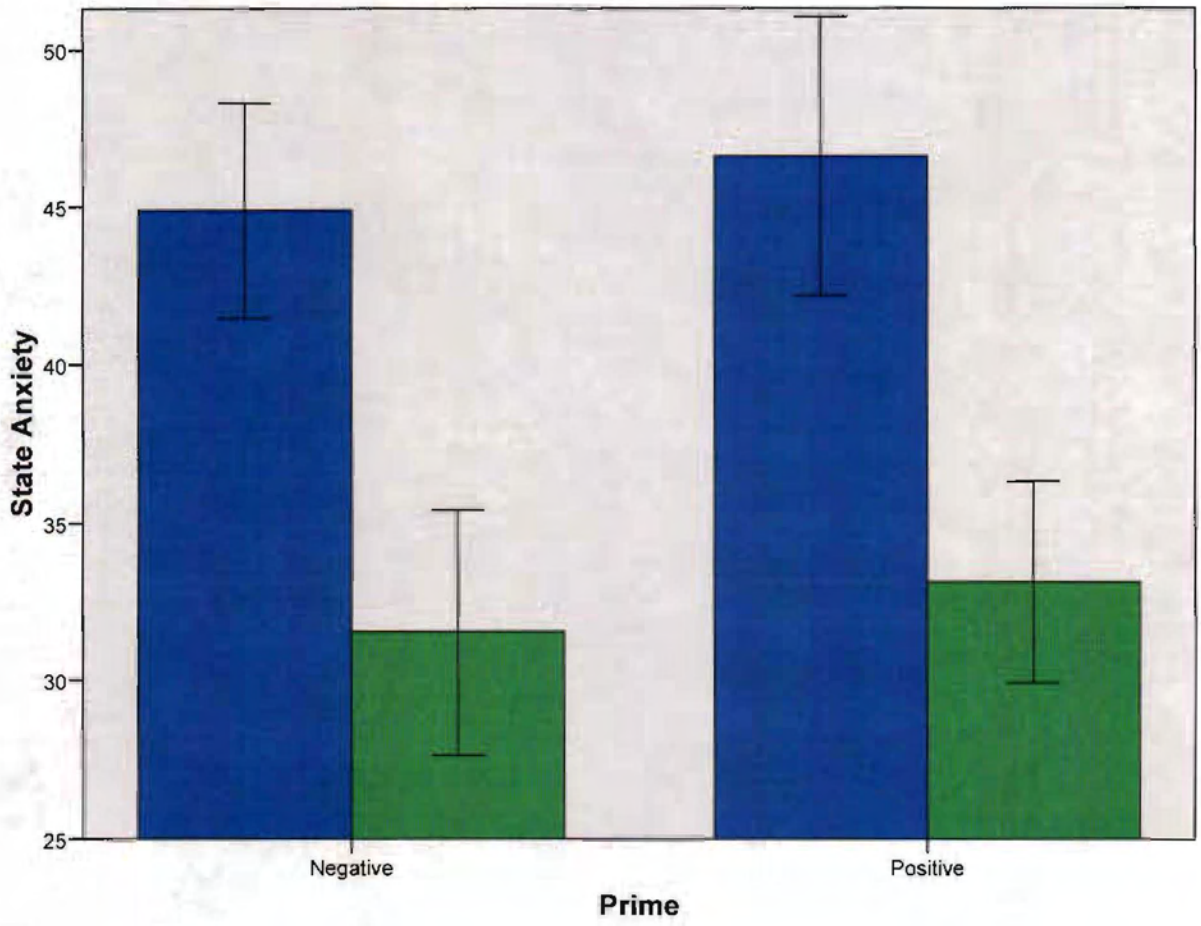


Hypothesis 2: It was found that priming did not affect therapeutic bond. The level of therapeutic bond indicated by participants who received the negative priming (*mean* = 1.37, *SD* = .20) and the level of therapeutic bond indicated by participants who received positive priming (*mean* = 1.28, *SD* = .25) did not differ as indicated by an independent samples t-test (t (50) = 1.49; p=.14).

Hypothesis 3: Priming in this experiment was intended to act directly on therapeutic bond, and not to affect EDA, posttreatment anxiety, or attitudes toward massage directly. However, testing demonstrated that priming did have a direct effect on each of these factors. A univariate analysis of covariance was used to analyze the effect that priming had on posttreatment anxiety while controlling for pretreatment levels of anxiety, which is important to do in this dataset because pretreatment and posttreatment state anxiety levels are highly correlated ($r(49) = .52, p < .01$). Controlling for pretreatment levels of anxiety, it is found that the two forms of priming had a differential effect on posttreatment levels of anxiety, such that recipients who were primed negatively showed greater decreases resulting from treatment ($F(1, 47) = 8.52, p < .01$). These results are represented graphically in Figure 2. This indicates that a negative prime somehow contributed to a greater decrease in anxiety than positive priming.

Figure 2

Pretreatment and Posttreatment Mean Anxiety Levels by Priming Condition



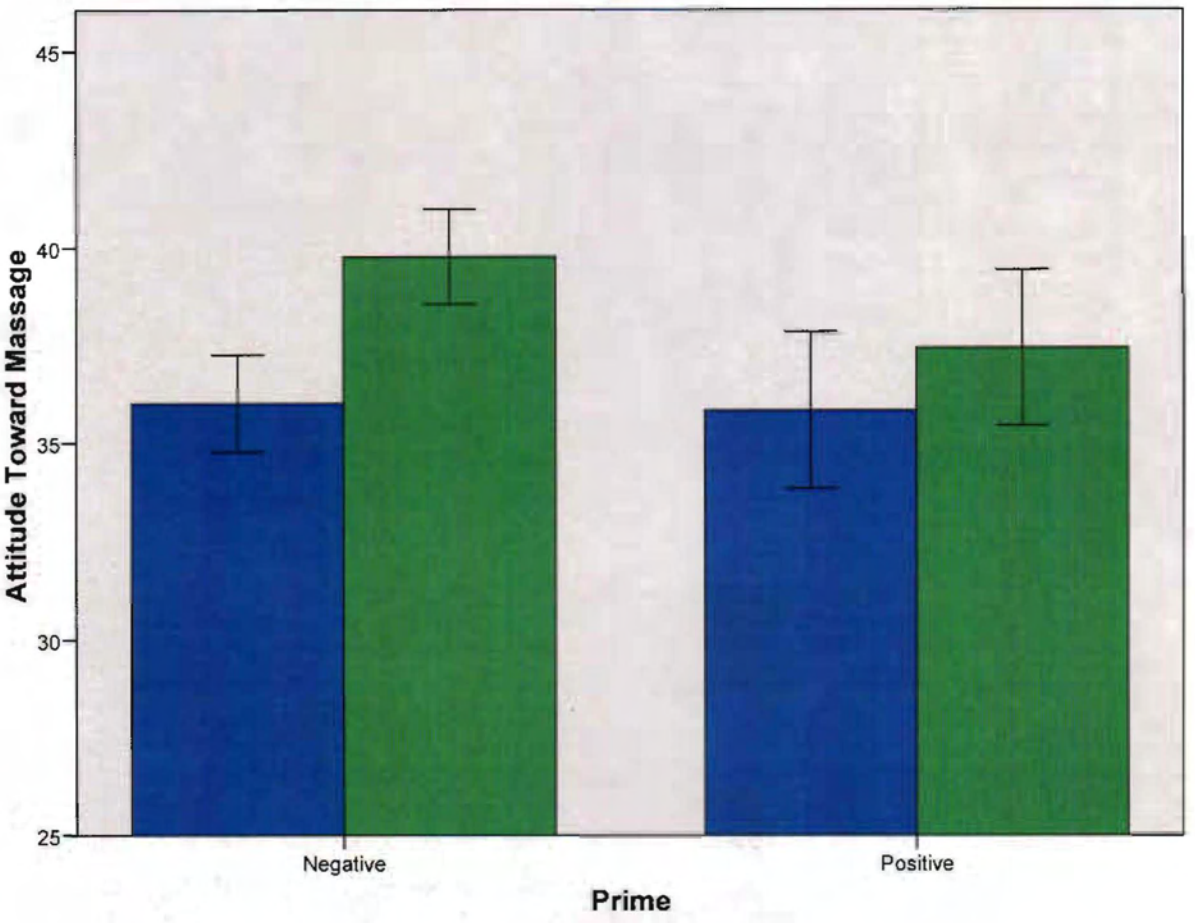
Blue bars represent pretreatment levels and green bars represent posttreatment levels. Whiskers indicate +/- two standard deviations.

Priming had a similar effect on attitudes toward massage. A univariate analysis of covariance was used to analyze the effect that priming had on posttreatment massage attitudes while controlling for pretreatment massage attitudes, which is important to do in this dataset because pretreatment and posttreatment massage attitudes are highly correlated ($r(49) = .72$, $p < .01$). Controlling for pretreatment massage attitudes, it is found that the two forms of priming had a differential effect on posttreatment massage attitudes, such that recipients who were primed negatively showed greater increases consistent with a more favorable attitude toward massage

following treatment ($F(1, 47) = 8.52$, $p < .01$). These results are represented graphically in Figure 3.

Figure 3

Pretreatment and Posttreatment Means on Attitude Toward Massage, +/- Two Standard Errors, by Priming Condition



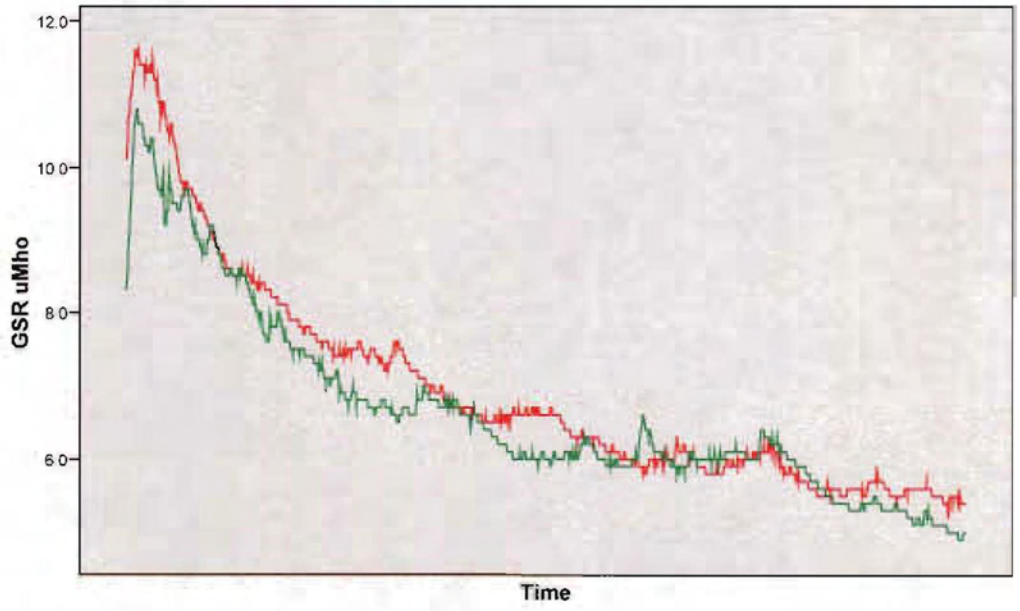
Blue bars represent pretreatment levels and green bars represent posttreatment levels. Whiskers indicate = +/- two standard deviations.

Finally, the direct effect of priming on EDA was examined. The average level of physiological arousal for each priming condition was calculated for every second of approximately the first twenty minutes of the treatment period, and then the means of the two

priming conditions were compared by conducting a paired samples t-test that accounts for the fact that considerable variability in physiological arousal is a function of the point in time at which each measure was taken. Across the treatment period, positively-primed recipients displayed, on average, a lower level of physiological arousal (paired $t(1195) = 26.65$, $r = .98$, $p < .01$)

Figure 4

Physiological Arousal During Treatment as a Function of the Priming Condition



Red trace indicates negative priming and green trace indicates positive priming.

Chapter V: Discussion

Massage Therapy and Anxiety

MT did have an anxiety-reducing effect that is consistent with the findings of previous studies (Moyer, Rounds, & Hannum, 2004). This significant reduction in anxiety is beneficial because it further strengthens the evidence that MT is an effective method for treating anxiety.

Priming on Therapeutic Bond

Priming did not have the effect on therapeutic bond that was originally hypothesized. It was intended that MT recipients primed with positive relationship words, such as *warm*, *close*, and *focused*, would exhibit higher levels of therapeutic bond than MT recipients primed with negative relationship words such as *cool*, *distant*, and *unfocused*. In fact, in an absolute (but not statistically significant) sense, the opposite was observed. Those that received the negative priming for *cool*, *distant*, and *unfocused* actually reported therapeutic bond levels that were marginally higher than their counterparts who received the positive priming.

Further Effects of Priming

It was hypothesized that priming in this experiment was intended to act directly on therapeutic bond, therefore not directly affecting posttreatment anxiety, attitude towards massage, or EDA. However, results indicated that priming did have an impact on these three areas. Those that were negatively primed reported a greater reduction in posttreatment anxiety compared to those that were positively primed. Similar findings were reported in attitude towards massage; those given the negative prime reported a greater improvement in their attitudes towards massage than those given the positive prime.

The EDA data indicate that priming had a different effect than compared to the posttreatment anxiety and attitude toward massage. The EDA illustrates that those that received

the positive prime had lower autonomic activity level than those that received the negative prime. Even though the difference between the negative and positive prime was very small, it was still a statistically significant difference.

Interpretation of Results

Possible explanations for the results indicate that priming had an effect, but not what was originally hypothesized. Why did negatively primed participants self-report they had a greater reduction in anxiety and a greater increase in attitude towards massage than those were primed positively? A possible interpretation is those given the negative prime were primed to experience a negative emotional and mental state. They were then exposed to a positive treatment (MT). Therefore, the aftereffects of the massage could have had a greater impact, making the massage seem even better than it perhaps normally would. Past researchers have used priming techniques in a different way, because after priming, participants in other research were most often exposed to a neutral scenario. The current experiment gave the participants either a positive or negative prime and then exposed them to a positive scenario. Perhaps that is why those that were primed negatively believed that the MT session was greater, or better than expected, following negative priming. Furthermore, those who were primed positively may have thought that the massage was as expected, because of their already positive emotional and mental state. Therefore, adding another positive treatment would not have as much effect. Hence, priming could have affected the perception of MT itself, in this paradoxical way, and not therapeutic bond as was intended.

It was also interesting to discover the slight discrepancy between the self-reported data (posttreatment anxiety and attitude towards massage) and the EDA data. Researchers know that neither tool is a faultless measure of anxiety alone. It could be possible that when used together, they are able to focus on both the psychologically and physiologically levels of anxiety that an

individual may be experiencing. It might also be important to ask participants how they personally analyze their current state of anxiety. Past experimenters indicate that the emotional state depends on two progressions: psychological arousal and perceiving that arousal. The emotion that we interpret is how we justify that psychological arousal to ourselves (Mook, 2004). This could be a possible explanation for why the effects of priming that were observed were divergent, dependent upon whether they were self-reports or physiological data.

Suggestions for Future Research

Priming did not affect therapeutic bond in the way that was hypothesized. In the present study, it was assumed that the priming task, based on its design, would affect relationship formation in the form of therapeutic bond. However, in hindsight, perhaps the priming technique had an effect not on the therapeutic relationship, but only on the individual participant's internal emotional state, self concept, or cognitive processes. This could explain why priming did not function in the intended way. For future research, the effect of priming should be validated through trials. A valid relationship-priming protocol, once established, would be beneficial in continuing research.

It could also be that priming is not an appropriate technique for manipulating therapeutic bond. Therefore, a different method could be used to understand the importance of therapeutic bond in MT. Future research could experiment with the amount of time that clients spend with the massage therapist. One group would have more non-treatment exposure to the massage therapist, which could result in a better therapeutic bond.

Conclusion

The current research project is consistent with past research that finds MT produces a reduction in anxiety. With further research in the area on MT, this treatment will continue to gain recognition as an effective way to reduce anxiety. Future research is warranted in the areas of

MT, therapeutic bond, and priming, to fully understand how they can be used to study treatment and to effectively reduce anxiety levels.

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Appendix A

Agreement to Consent

Title:
Massage Therapy for Anxiety:
Is it Affected by Therapeutic Bond?

Investigator:

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Research Sponsor:

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Description:
If agreed to participate, you will be receiving a thirty minute chair massage at no cost to you. Once you arrive at the designated appointment time, you will be placed in the massage chair. You then be connected to the EDR and EMG machines. You will retake the STAI to determine what their currently level of anxiety is. Directly prior to the massage you will be administered the implicit priming activity. You will then be introduced to the massage therapist and the massage will be given. After the completion of the massage, you will be released from the EDR and EMG and be re-administered the STAI. You will also be given the TBS to complete. After they have gone through the primary debriefing, you will have completed what is being requested.

Risks and Benefits:
Massage therapy in the form of chair massage performed by a trained massage therapist presents a risk level no higher than that associated with ordinary activities in daily life. In addition, you will remain fully clothed for their chair massage session, and will be informed that you may call an end to the session at any point if you so wish. In addition, massage therapy has been shown to consistently reduce anxiety, and so it is expected that you are likely to benefit from having participated in the research. All procedures, as well as measures that will be used in the experiment are of common practices for this research type and have been documented as safe by accredited researchers in the past. This experiment posses no foreseeable threat to those that wish to participate.

There are many benefits that can be attributed to this experiment. The first benefit will be directed towards you as the subjects who wish to participate. You will receive a free thirty minute chair massage. Since you have been indentified to having high anxiety levels, it hypothesized that through the massage your anxiety levels will have dropped. The second area will be directed towards society because depending on the findings of this experiment, we will be able to assess how important different factors can be portrayed on the therapeutic bond. In our experiment, we are using massage to examine the therapeutic bond, even though any type of bond can be used (i.e. doctor-patient relationships). The additional measures that we will be using for this experiment, will only increase the data that is already existing for proving how powerful massage therapy can be in altering how the patient feels after the massage is complete.

Time and Commitment:
This portion will take approximately one hour in time. This will be a one time commitment and will be notified on debriefing as well as the findings and results.

Confidentiality:
Your name will not be included on any documents. We do not believe that you can be identified from any of this information. This informed consent will not be kept with any of the other documents completed with this project.

Right to Withdraw:
Your participation in this study is entirely voluntary. You may choose not to participate without any adverse consequences to you. Should you choose to participate and later wish to withdraw from the study, you may discontinue your participation at this time without incurring adverse consequences.

IRB Approval:
This study has been reviewed and approved by The University of Wisconsin-Stout's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have questions or concerns regarding this study please contact the Investigator or Advisor. If you have any questions, concerns, or reports regarding your rights as a research subject, please contact the IRB Administrator.

If you have any questions regarding this experiment please feel free to contact:

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Statement of Consent:

By signing this consent form you agree to participate in the project entitled: **Massage Therapy for Muscle Tension and Anxiety: Is it Affected by Therapeutic Bond?**

_____

Signature.....Date

Appendix B

SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name_____Date_____

DIRECTIONS

A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate you *generally* feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	1	2	3	4
22. I feel nervous and restless	1	2	3	4
23. I feel satisfied with myself	1	2	3	4
24. I wish I could be as happy as others seem to be	1	2	3	4
25. I feel like a failure	1	2	3	4
26. I feel rested	1	2	3	4
27. I am "calm, cool, and collected"	1	2	3	4
28. I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
29. I worry too much over something that really doesn't matter	1	2	3	4
30. I am happy	1	2	3	4
31. I have disturbing thoughts	1	2	3	4
32. I lack self-confidence	1	2	3	4
33. I feel secure	1	2	3	4
34. I make decisions easily	1	2	3	4
35. I feel inadequate	1	2	3	4
36. I am content	1	2	3	4
37. Some unimportant thought runs through my mind and bothers me	1	2	3	4
38. I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
39. I am a steady person	1	2	3	4
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

Appendix C

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1

Please provide the following information:

Name_____Date_____S_____

Age_____ Gender (*Circle*) **M** **F** T_____

DIRECTIONS:

A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate circle to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I feel strained	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel satisfied	1	2	3	4
9. I feel frightened	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I am jittery	1	2	3	4
14. I feel indecisive	1	2	3	4
15. I am relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel confused	1	2	3	4
19. I feel steady	1	2	3	4
20. I feel pleasant	1	2	3	4

Appendix D

Attitude Toward Massage Scale

For each of the following statements, please circle the response that is most consistent with your attitudes.

1. I like to be touched by other people

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

2. Receiving a massage would make me nervous

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

3. Receiving a massage would improve my mood

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

4. I like to be massaged

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

5. Receiving a massage is as good for the mind as it is for the body

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

6. Receiving massage is relaxing

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

7. Massage should be covered by health insurance

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

8. Massage is a serious form of therapy

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

9. Receiving regular massage would be good for promoting health and well-being

Strongly disagree *Disagree* *Neutral* *Agree* *Strongly agree*

Appendix E

Priming- Positive

Mental Alertness

For each set of five words, choose the four that make a complete, logical sentence, and write that sentence on the corresponding line.

Example:

orange drink juice the copper: *Drink the orange juice*

focused is fish camera the: _____

from are Kansas preserve they: _____

she interested ridged definitely was: _____

ball the hoop toss normally: _____

connected is sock battery the: _____

sky the seamless red is: _____

the leather genuine is banked: _____

save does study usually he: _____

the filled present was student: _____

the machine was frequently clothes: _____

that him college green accepted: _____

saw hammer he train the: _____

object that close beans is: _____

watches is he occasionally people: _____

was book food the warm: _____

Appendix F

Priming- Negative

Mental Alertness

For each set of five words, choose the four that make a complete, logical sentence, and write that sentence on the corresponding line.

Example:

orange drink juice the copper: *Drink the orange juice*

unfocused is fish camera the: _____

from are Kansas preserve they: _____

she bored ridged definitely was: _____

ball the hoop toss normally: _____

disconnected is sock battery the: _____

sky the seamless red is: _____

the leather fake is banked: _____

save does study usually he: _____

the filled absent was student: _____

the machine was frequently clothes: _____

that him college green rejected: _____

saw hammer he train the: _____

object that distant beans is: _____

watches is he occasionally people: _____

was book food the cold: _____

Appendix G

Therapeutic Bond Scale

For each statement, circle the answer which best applies. Please be sure to answer EVERY item.

1. HOW DO YOU FEEL ABOUT THE MASSAGE SESSION YOU HAVE JUST COMPLETED?

   THIS SESSION WAS:

   a. Perfect
   b. Excellent
   c. Very good
   d. Pretty good
   e. Fair
   f. Pretty poor
   g. Very poor

DURING THIS MASSAGE SESSION, HOW MUCH:

	None	Some	A Lot
2. Did you perceive having a person-to-person connection with your therapist?.....	0	1	2
3. Did it feel that your therapist was friendly and warm towards you?.....	0	1	2

4. HOW DID YOU FEEL ABOUT COMING TO THIS MASSAGE THERAPY SESSION?

   a. Eager; could hardly wait to get here.
   b. Very much looked forward to coming.
   c. Somewhat looked forward to coming.
   d. Neutral about coming.
   e. Somewhat reluctant to come.
   f. Unwilling; felt I didn't want to come at all.

5. TO WHAT EXTENT WOULD YOU LOOK FORWARD TO ANOTHER MASSAGE THERAPY SESSION, IF ONE WERE OFFERED?

a. Intensely; I'd want it to be very soon.
b. Very much; I'd want it to be soon.
c. Pretty much; I'd be pleased when the time came.
d. Moderately; I'd probably come if it fit my schedule.
e. Very little; I'm not too sure I would want to come.

6. HOW WELL DO YOU THINK YOUR MASSAGE THERAPIST UNDERSTOOD HOW YOU FELT DURING THIS MASSAGE THERAPY SESSION?

IT SEEMED THAT THE MASSAGE THERAPIST:

a. Understood exactly how I felt.
b. Understood very well how I felt.
c. Understood how I felt pretty well, most of the time.
d. Didn't understand too well how I felt.
e. Misunderstood how I felt.

WHAT WERE YOUR FEELINGS DURING THIS MASSAGE THERAPY SESSION? (For each feeling, circle the answer that best applies.)

DURING THIS SESSION I FELT:

	None	Some	A lot		None	Some	A lot
7. Confident.....	0	1	2	17. Embarrassed...	0	1	2
8. Withdrawn.....	0	1	2	18. Helpless.....	0	1	2
9. Determined.....	0	1	2	19. Grateful.....	0	1	2
10. Close.....	0	1	2	20. Impatient.....	0	1	2
11. Strange.....	0	1	2	21. Likeable.....	0	1	2
12. Affectionate.....	0	1	2	22. Serious.....	0	1	2
13. Pleased.....	0	1	2	23. Inhibited.....	0	1	2
14. Confused.....	0	1	2	24. Accepted.....	0	1	2
15. Cautious.....	0	1	2	25. Frustrated.....	0	1	2
16. Hopeful.....	0	1	2				

BASED ON YOUR EXPERIENCE RECEIVING MASSAGE, HOW DO YOU THINK YOUR MASSAGE THERAPIST FELT DURING THIS SESSION? (Circle the answer which best applies.)

THE MASSAGE THERAPIST PROBABLY WAS:

	None	Some	A lot		None	Some	A lot
26. Pleased.....	0	1	2	32. Thoughtful.....0		1	2
27. Bored.....	0	1	2	33. Cheerful.....0		1	2
28. Involved.....	0	1	2	34. Attracted..... 0		1	2
29. Confident.....	0	1	2	35. Interested.....0		1	2
30. Optimistic.....	0	1	2	36. Affectionate.....0		1	2
31. Alert.....	0	1	2	37. Close.....0		1	2

Appendix H

Funneling Questions

Debriefing questions to check participant knowledge of implicit priming task:

1. What do you think the purpose of this experiment was?
2. Did you think that any of the questions were related in any way? (If "yes") In what way were they related?
3. Did any of the questionnaires affect your massage? (If "yes") How did they affect your massage?
4. Did you notice any particular pattern or theme to the words that were included in the sentence task?